



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,511	08/31/2000	Kenneth W. Batcher	72255/02659	4471

23380 7590 03/18/2005

TUCKER, ELLIS & WEST LLP  
1150 HUNTINGTON BUILDING  
925 EUCLID AVENUE  
CLEVELAND, OH 44115-1475

EXAMINER

PHILPOTT, JUSTIN M

ART UNIT PAPER NUMBER

2665

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/652,511

Applicant(s)

BATCHER, KENNETH W.

Examiner

Justin M Philpott

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. In the amendment filed December 7, 2004, applicant has canceled claims 1-26 and added new claims 27-44. New claims 27-44 are presently rejected for reasons discussed in the following office action.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 36 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 36 recites the limitation "the counter" (line 3) in claim 35; and claim 39 recites the limitation "the means for delaying" (line 1) in claim 27. There is insufficient antecedent basis for these limitations in the claims. Applicant may overcome these rejections by amending claim 36 to instead recite "the means for counting", and amending claim 39 to be dependant upon claim 34 instead of claim 27.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2665

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 27, 32, 34, 38 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,516,369 to Bredin.

Regarding claim 27, Bredin teaches a system for providing priority based access to a shared resource, comprising: a central arbiter (e.g., aligner 46, see FIG. 4) coupled to the shared resource (e.g., CPU 10, see FIG. 1, via bus and control channel 19a/b; also see col. 2, lines 50-67 and col. 3, line 23 – col. 4, line 19), the central arbiter (e.g., aligner 46) having a first input (e.g., T1\_n) and a second input (e.g., WR1\_n); a first device (e.g., token status register 48) coupled to the first input (e.g., token vector T1\_n) of the central arbiter (e.g., aligner 46); a second device (e.g., one of master devices Master\_1-n in FIG. 2 which provide request signals R to arbiter system 20/40 via request signals R1\_Rn in FIG. 4); and a priority based arbiter (e.g., token arbitration 42) coupled between the second device (e.g., master devices Master\_1-n) and the second input (e.g., WR1\_n) of the central arbiter (e.g., aligner 46); wherein the priority based arbiter (e.g., token arbitration 42) receives a signal (e.g., T1\_n) from the first device (e.g., token status register 48) indicative of a priority status of the first device (e.g., see col. 3, lines 32-38 regarding priority); and wherein the priority based arbiter (e.g., token arbitration 42) is responsive to generate a modified request signal (e.g., rotative request vector RR1\_n) responsive to a signal (e.g., request signal R1\_Rn) from the second device (e.g., Master\_1-n) that is sent to the second input (e.g., WR1\_n) of the central arbiter (e.g., aligner 46) after a delay of a predetermined amount of time (e.g., according to reordering of the request from highest to lowest priority, inherently comprising a predetermined delay time in accordance with the priority

Art Unit: 2665

ordering, see col. 3, lines 42-54) based on the signal (e.g., token vector T1\_n) from the first device (e.g., token status register 48) (e.g., see col. 3, lines 25-41).

Regarding claim 32, Bredin teaches the shared resource is a bus (e.g., bus 19, see FIG. 1).

Regarding claim 34, Bredin teaches a system for providing priority based access to a shared resource, comprising: a first device (e.g., Master\_1, see FIG. 2); a second device (e.g., Master\_n); means for alternatively granting access (e.g., via aligner 46, see FIG. 4) to the shared resource (e.g., channel 22/19 coupled to CPU 10, see FIGS. 1 and 2) between the first device (e.g., Master\_1) and the second device (e.g., Master\_n) when both devices request access (e.g., via request signals R1\_Rn) to the shared resource (e.g., see col. 3, lines 1-10); and means for delaying (e.g., via weighted arbitration 44, reordering the request from highest to lowest priority, inherently comprising delaying, see col. 3, lines 42-54) the request for access (e.g., request signal Rn) from the second device (e.g., Master\_n) coupled between the second device (e.g., Master\_n) and the means for alternatively granting access (e.g., aligner 46); wherein the means for delaying (e.g., via weighted arbitration 44) the request for access from the second device (e.g., request signal Rn) is responsive to a signal from the first device (e.g., weighted arbitration 44 is responsive to RR1 which is generated in part by, and is thus responsive to, request signal R1 [Rq#1], see FIG. 5 and col. 4, lines 20-58) indicative of a priority status (e.g., see col. 3, lines 35-38 regarding priority) of the first device (e.g., Master\_1) to delay the request from the second device a predetermined amount of time (e.g., according to reordering of the request from highest to lowest priority, inherently comprising a predetermined delay time in accordance with the priority ordering, see col. 3, lines 42-54) based on the signal indicative of the priority status of

Art Unit: 2665

the first device (e.g., request signal R1 [Rq#1] which determines in-part RR1 comprising priority indication) (e.g., see col. 3, lines 25-58).

Regarding claim 38, Bredin teaches the shared resource is a bus (e.g., bus 19, see FIG. 1).

Regarding claim 40, Bredin teaches a method for selectively granting access to a shared resource between a first device and a second device, comprising: receiving a signal (e.g., request signal R1 [Rq#1], see FIGS. 2, 4 and 5) from the first device (e.g., Master\_1) requesting access to the shared resource (e.g., channel 22/19 coupled to CPU 10, see FIGS. 1 and 2), the signal (e.g., R1 [Rq#1]) from the first device (e.g., Master\_1) having an associated priority level (e.g., see FIGS. 5 and 6 and col. 4, line 20 – col. 5, line 23 regarding priority levels according to HWR, MWR and LWR, wherein the level is determined using Rq#1 via the computation of RR#1); and delaying a signal from the second device (e.g., Master\_n) requesting access to the shared resource (e.g., channel 22/19 coupled to CPU 10) a predetermined amount of time based on the associated priority level of the first device (e.g., delaying according to reordering of the request from highest to lowest priority, inherently comprising a predetermined delay time in accordance with the priority ordering, see col. 3, lines 42-54).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2665

7. Claims 33, 39, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredin in view of applicant's admitted prior art (AAPA).

Regarding claims 33, 39, 43 and 44, Bredin teaches the system discussed above regarding claims 27, 34 and 40. Further, regarding claim 44, Bredin also teaches the associated priority level is one of the group consisting of high priority (e.g., highest/higher priority) low priority (e.g., second or medium priority), and lowest priority (e.g., lower priority) (e.g., see col. 3, lines 25-54 and col. 5, lines 9-23). However, Bredin may not specifically disclose delay based upon an idle state or that the lowest priority is an idle state. AAPA teaches that providing an idle state is well known in the art of priority-based processing (e.g., see specification, page 2, lines 16-18). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to implement an idle state as the lowest priority to avoid delay in generating the modified request signal in the priority-based processing of Bredin since applicant admits that providing an idle state is well known in the art of priority-based processing.

8. Claims 28-31, 35-37, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredin in view of U.S. Patent No. 6,118,787 to Kalkunte et al.

Regarding claim 28, Bredin teaches the system discussed above regarding claim 27, however, may not specifically disclose the priority based arbiter further comprises a counter. Kalkunte also teaches a system for providing priority based access to a shared resource and, specifically, teaches priority based arbitration comprises a counter (e.g., counter 164a, see col. 9, lines 6-22). The teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2,

Art Unit: 2665

lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 29, Kalkunte teaches a value is input into the counter (e.g., programmed delay interval  $t_D$  is adjusted by a slot time  $t_s$ , see Table 1 and col. 8, lines 3-39) based on a signal indicative of the priority status of a first device (e.g., based on sensing a deassertion signal); and a predetermined amount of time (e.g., programmed delay interval) is based on the value of the counter (e.g.,  $t_D$  is based on the value of the adjusting slot time  $t_s$ ). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 30, Kalkunte teaches a priority based arbiter (e.g., MAC 22) is configured to change the value in the counter (e.g., counter 164a) based on a change of the signal (e.g., upon sensing deassertion of the receive carrier, see col. 8, lines 3-6) from a first device (e.g., station) indicative of the priority status of the first device (e.g., according to allocated bandwidths indicating the priority of the particular station, see col. 8, lines 7-38). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48; and see col. 5, lines 18-39 regarding priority). Thus, at the time of the invention it



Art Unit: 2665

would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 31, Kalkunte teaches the priority based arbiter (e.g., MAC 22, see col. 5, lines 18-39) further comprises a programmable configuration logic (e.g., controller 166) for configuring (e.g., see col. 9, lines 12-22) the counter (e.g., counter 164a) to generate the predetermined delay (e.g., programmed delay interval  $t_D$ ) associated with respective context data (e.g., according to the sequences of Table 1, see col. 8, lines 8-49). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48; and see col. 5, lines 18-39 regarding priority). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 35, Bredin teaches the system discussed above regarding claim 34, however, may not specifically disclose means for delaying further comprises means for counting. As discussed above, Kalkunte also teaches a system for providing priority based access to a shared resource and, specifically, teaches delay means comprises means for counting (e.g., via counter 164a, see col. 9, lines 6-22). As also discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 36, Kalkunte teaches a value is input into the means for counting (e.g., programmed delay interval  $t_D$  is adjusted by a slot time  $t_s$ , see Table 1 and col. 8, lines 3-39) based on a signal indicative of the priority status of a first device (e.g., based on sensing a deassertion signal); and a predetermined amount of time (e.g., programmed delay interval) is based on the value of the means for counting (e.g.,  $t_D$  is based on the value of the adjusting slot time  $t_s$ ). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 37, Kalkunte teaches means for delaying (e.g., via MAC 22) is configured to change the value in the means for counting (e.g., counter 164a) based on a change of the signal (e.g., upon sensing deassertion of the receive carrier, see col. 8, lines 3-6) from a first device (e.g., station) indicative of the priority status of the first device (e.g., according to allocated bandwidths indicating the priority of the particular station, see col. 8, lines 7-38). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48; and see col. 5, lines 18-39 regarding priority). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Art Unit: 2665

Regarding claim 41, Bredin teaches the system discussed above regarding claim 40, however, may not specifically disclose utilizing a counter. As discussed above, Kalkunte also teaches a system for providing priority based access to a shared resource and, specifically, teaches initializing a counter (e.g., counter 164a) with a predetermined initial value (e.g., programmed delay interval  $t_D$ ) based on the associated priority level of a first device (e.g., priority level of a particular station, see col. 5, line 18 – col. 6, line 57); and decrementing the counter until the counter reaches a predetermined threshold value (e.g., see col. 8, lines 3-6); wherein the delaying continues until the counter reaches the predetermined threshold value (e.g., see col. 8, lines 3-6 wherein MAC 22 waits for duration of the programmed delay interval). As also discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

Regarding claim 42, Kalkunte teaches re-initializing the counter responsive to a change of the associated priority level of the sign from the first device (e.g., see col. 6, lines 14-57; and see col. 5, lines 18-38 regarding priority). As discussed above, the teachings of Kalkunte provide an improvement over a token-based system, such as that of Bredin, by conserving bandwidth and increasing network throughput (e.g., see col. 2, lines 12-48). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Kalkunte to the system of Bredin in order to conserve bandwidth and increase network throughput.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,092,137 to Huang et al. discloses a data bus arbitration system with adjustable priority.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

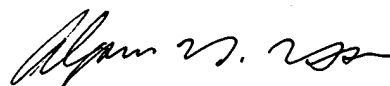
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

Art Unit: 2665

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 571.272.3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Justin M Philpott



**ALPUS H. HSU**  
**PRIMARY EXAMINER**